DOCUMENT RESUME

ED 089 611 HE 005 352

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TITLE	A Preliminary Evaluation of Cost Studies in Higher Education.
INSTITUTION	California Univ., Berkeley. Office of Institutional Research.
PUB DATE	Oct 69
NOTE	47p.
EDRS PRICE	MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS	*Cost Effectiveness; *Educational Accountability; *Educational Administration; Evaluation; *Higher Education; *Management; Operations Research; Systems Analysis; Universities

ABSTRACT

There have been four objectives to this preliminary study on cost analysis procedures in higher education: to examine and evaluate materials on cost analysis recently gathered; to explain the basic techniques of cost studies and the uses to which they are put; to identify, if possible, the specific value of cost analysis as an administrative tool; and to determine whether the cost figures supplied by various institutions can be used to make interinstitutional cost comparisons. The body of the report is concerned with the second and third objectives. The relevant materials listed, with brief annotations in the bibliography, form the basis of the general discussion in the report. Cost analysis in higher education is a melange of conceptual, procedural, and political problems to which one cannot do justice in a single report. It has been an underlying assumption of this study that its function would be to raise general questions that, in turn, might suggest specific investigations. (Author/PG)

A PRELIMINARY EVALUATION OF COST STUDIES IN HIGHER EDUCATION

University of California, Berkeley

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

Office of Institutional Research
October, 1969

ED 089611

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October, 1969

Preface

Early in 1969, Stephen P. Diliberto, Professor of Mathematics and Chairman of the Building and Campus Development Committee and I began explorations of available information on cost figures and cost study methods for higher education. We discovered no ready material that displayed values and techniques for a wide spectrum of the United States. We resorted to mail inquiries of individuals and institutions throughout the States and were rewarded with a generous amount of material and numerous helpful suggestions.

This paper by Mr. Alfred D. Cavanaugh represents a preliminary effort to examine, in general terms, the value and validity of cost studies. We hope to be able to make additional examinations of various specific aspects of cost studies in the near future.

I wish to thank all of the contributors throughout the country for their contributions.

Sidney Suslow
Director

INTRODUCTION

There have been four objectives to this preliminary study on cost analysis procedures in higher education: first, to examine and evaluate the materials on cost analysis recently gathered by the Office of Institutional Research; second, to explain the basic techniques of cost studies and the uses to which they are put; third, to identify, if possible, the specific value of cost analysis as an administrative tool; and fourth, to determine whether the cost figures supplied to the Office by various institutions and state systems can be used to make inter-institutional cost comparisons.

The body of the report is concerned with the second and third objectives. The relevant materials are listed, with brief annotations, in the bibliography, and form the basis of the general discussion in the report. The question raised by the fourth objective is not dealt with separately because it is felt the answer is implicit in the discussion.

Any study of cost analysis procedures is severly handicapped by the scantiness of the literature. The work of cost analysis is largely done by staff personnel associated with colleges and universities, with state budget offices and with coordinating councils. The work of most analysts is tied down to administrative demands for information and to the exigencies of state budget procedures; the pressure of time precludes significant publication on methodological problems although it is sorely needed.

It seems clear that the primary source for this type of investigation must be personal interviews with the analysts themselves, a number of whom can speak at length and with insight about the value and problems of their work.

The materials in the possession of the Office of Institutional Research are probably as large and as up-to-date a collection as one is likely to find, but there are noticeable gaps and substantial uncertainties regarding the significance and completeness of some of the materials. There is a further complication in the occasional overlapping of studies within the same state, with several agencies and institutions doing semi-independent studies according to different methodologies.

A five-year search of the periodical literature has uncovered only a few usable articles dealing directly with cost analysis. For the same period, three doctoral dissertations have been identified that have some merit. Parts of books and reports on related subjects were found to be useful. All of these are listed in the bibliography. There is no comprehensive survey available of current practices in the various states. The Education Commission of the States several years ago initiated a study, under the direction of Lanier Cox of the University of Texas, of all current state efforts on cost analysis and formula budgeting; but the project has languished for lack of adequate funding.

Two items deserve special mention: Miller's study of state budgeting procedures in higher education, and the series of articles on analysis of institutional expenditures in College and University Business by Russell and Doi. Miller's investigation was conducted in 1960 and 1961, and the

Russell-Doi articles are from the mid-fifties; but they have never been superseded and are perhaps the only essential reading on the subject of cost analysis in higher education.

In the interests of manageability and objectivity the experiences of the state of California with cost analysis have not been used to support the conclusions of this report. In some ways this weakens their impact, because California's experience in developing the formulas of the master plan has been very influential. However, so much information was available it was felt there was not sufficient time for an adequate investigation. It was also felt there might be some gain in objectivity in standing apart from problems that one reads and hears about every day. Most of the important documents have been read, however, and do not contradict the conclusions drawn from study of the cost analysis procedures of other states.

One more point. Cost analysis in higher education is a melange of conceptual, procedural and political problems to which one cannot do justice in a single report. It has been an underlying assumption of this preliminary study that its function would be to raise general questions, which in turn might suggest more specific investigations. In this connection the word preliminary might well be underscored.

There is nothing particularly new about analyzing costs in higher education. This has been a concern of academic administrators since at least the turn of the century. In 1935 a cost-analysis procedure was published under the auspices of the three regional associations of college and university business officers.[1] It is testimony to the soundness of the procedure proposed and to the intransigence of cost problems in higher education that most of the cost-analysis procedures currently in use are only modifications of this 34-year old method. The procedure was reprinted and included as a supplement to the two-volume edition of College and University Business Administration, published in 1952 by the American Council on Education. This publication and its revision in 1968 have become the bible of college accounting.[2]

It is important to note that the procedure suggested in 1935 was intended primarily for use in internal administration. As for comparing the costs of one institution with those of another, there was a clear warning in the 1935 publication:

> It should be recognized that unit costs determined in different institutions are comparable only when they have been computed according to identical procedures. It may not be too much to say that they are comparable only when the computations in the different institutions have been made by the same individual, especially if the institutions vary widely in size, scope, location, and organization.[3]

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1 The National Committee on Standard Reports for Institutions of Higher Learning, Financial Reports for Colleges and Universities (Chicago: The University of Chicago Press, 1935).

2 It is interesting and possibly significant that the revised edition contains virtually no discussion of the problems of cost analysis.

3 Op. cit., p. 177.

At present, however, the most significant and wisespread use of cost analysis is at the state level, providing data for entire systems of public higher education. This raises two questions: Can a system be useful for state budgeting purposes that was developed for use within individual institutions? And have individual institutions found through experience that the procedure was not of great value for purposes of internal cost control? I am not attempting to answer either question, and wish at this point only to emphasize what seems to be an important historical inconsistency.

Probably because of their common origin, there is a great deal of uniformity in the approaches taken in the various states to cost analysis. Argument can be intense about details, especially in the definition of terms and in the choice of unit measures, but an underlying similarity of approach remains.[4] What follows is a brief description of cost-analysis techniques, glossing over many points of disagreement.

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[4] It is more than conceivable that this similarity betrays the lack of attention of financial analysts to the basic problem of defining cost in non-profit organizations. This problem is discussed below. The information demands of the state budgeting process have drained the time and energy of most analysts away from what is still the basic task: identifying and controlling real costs within individual institutions. The general inapplicability at the local level of the cost data gathered at the state level is widely recognized. Cf. Miller, op.cit., p. 80: "In every one of the states discussed, the use of the new procedure is clearly specified for budget preparation purposes only, that is, to form the basis for an estimate of the financial support needed by the institution." John Dale Russell, in Yardsticks and Formulas in University Budgeting (Boulder: W.I.C.H.E., 1959), p. 68, makes a similar point, going so far as to suggest that "once an adequate determination is made of total budget needs...there should never be any further control by means of line-item appropriations."

COST ANALYSIS PROCEDURES

While as many as six distinct funds[5] can be accounted for in the financial reports of colleges and universities, cost analysis is concerned with only one of these, the current fund. This is the most important by far, for through it are channelled all income and expenditures relating to the educational program. The current fund is divided into two categories, restricted and unrestricted, the former accounting for the disposition of money supplied under grant from government and private sources for specific research projects. Cost analysis is concerned only with unrestricted revenue and expenditures, even though the amount of money involved in supported research projects may be very large.

Within the current fund, income and expenditures are commonly grouped into three categories: educational and general income and expenditures, student aid, and auxiliary services. Again, cost analysts rarely concern themselves with the last, although student aid is sometimes incorporated into the Educational and General category, and business offices do many independent cost studies of auxiliary operations such as the food service.

Within Educational and General are found a number of significant sub-categories and at this point cost analysis goes into full operation. The most important of these sub-categories is the one entitled "Instruction and Departmental Research." Here are found all of the expenditures of the instructional divisions of the institution--departments, schools, colleges--and it is here that analysts concentrate their efforts. It is also at this point that disagreement develops. Many analysts feel that since many

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[5] An outline of the common classification of funds and accounting categories is given in Appendix A.

of the faculty, whose salaries are far and away the largest expenditure of an institution, are also deeply involved in supported research and public service, it is a dangerous oversimplification to accumulate all costs around instruction. Unfortunately, adequate measures of the non-instructional roles of the faculty have not been discovered, and for the sake of a manageable and reasonably complete analysis that will be generally acceptable, the assumption is made that a college or university ultimately does nothing except teach.[6]

The expenditures in the sub-category of "Instruction and Departmental Research" are considered for most purposes to be direct costs. Expenditures accounted for in the dozen or so other sub-categories under "Current Fund (Unrestricted): Educational and General" are usually considered to be indirect costs. Where indirect costs are considered at all--and a surprising number of studies ignore them--they are allocated back as indirect costs to the instructional divisions of the institution by some general rule-of-thumb. For example, plant maintenance costs can be allocated to departments on a square-foot occupancy basis. The most important of these sub-categories, and the ones most frequently analyzed, are libraries, plant maintenance, student services, general institutional expenses, and general administration (a president is an indirect cost). Staff benefits are a separate problem: if the information is available, they are usually added to individual salaries as a direct cost.

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[6] One quotation from among the many possible: "The public, including many legislators, is willing to accept the notion that the total function of the teaching staff member is the teaching of students." (Internal methodology report from a major midwestern university.)

Once the basic data has been gathered, either from the accounting records or from the budget[7], there are at least three ways in which it can be organized and presented.

The first is a simple organized listing of total expenditures. The annual financial report is the simplest example of this kind of analysis. Its usefulness is limited by whatever shortcomings exist in the classifications of the accounting system; by the frequent absence of comparative data (although professional accountants prefer to make comparisons throughout with the previous year's report); and by the shortage of academic administrators who can interpret balance sheets.

A second way in which the data can be analyzed is to determine the percentage distribution of funds among the different expense categories and note how these percentages have varied over a period of time. This approach requires some manipulation of the accounting data, but also tends to make it more useful to readers. It has the substantial advantage of highlighting important policy questions by demonstrating without need for further analysis that expenses in certain areas may be growing or shrinking out of proportion to the rest of the budget.

There is a constant temptation in using this approach to attempt to derive simple standards for administrative guidance through comparisons of the percentage allocations of different institutions. A standard such

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7 Although budget information is only a projection of expenses, it is often impossible as a practical matter to use the reports of actual expenditures kept by the accounting office. The errors introduced by using the budget are probably self-correcting, except in the case of an institution with unusually lax budget control procedures.

as "plant maintenance costs should amount to no more than 15% nor less than 10% of total expenditures in the Educational and General category" would, if valid, be a great help in making budget decisions. It is, however, of questionable validity. Age of buildings and the availability of funds for replacement alone would seem to vary enough from one institution to another to invalidate this standard.[8]

The third and most common method of analyzing expenditures is in terms of unit costs. This approach facilitates the comparison of data by eliminating a number of variables. In essence, the expenditures, which, to use the rather unfortunate terminology which has grown up around educational cost analysis, represent 'input,' are divided by the number of units of 'output,' whatever these may be considered to be, and the resulting figure becomes a cost per unit of 'production.'[9]

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8 John Dale Russell, whose name is closely associated with this type of cost analysis, states unequivocally that such standards cannot be derived. See his The Finance of Higher Education (revised edition; Chicago: The University of Chicago Press, 1954), p. 137.

9 The influence of this terminology has, I believe, had a very negative effect on the use of cost analysis data. On the one hand it gives the mistaken impression to academic administrators that, within its proper context, unit-cost data has a validity in higher education comparable to that of analytical cost data in business and industry. This is simply not so. The comparison is at best an analogous one; the very best unit-cost information in education does not even approach the significance and usefulness of cost data in profit-seeking organizations. It does not provide a firm basis from which to control expenditures, nor can it be used to put a value on the 'product'. Even in proper context it is the wrong term: 'unit-expenditure' is far more accurate. The terminology also is repellent to many academicians, and hardly flattering to the best instruction and research to be found in the universities and colleges. Because of this, it is ignored by many influential individuals within the academic decision-making structure. This is quite unfortunate because, with all its shortcomings, unit-cost information is an important and probably essential adjunct to informed decision-making.

Continuing with the industrial analogy, one can see at once there will be a great difference of opinion as to what is actually 'produced' in the educational process. It is no help to say that knowledge is produced, because there is no way of directly quantifying it. If unit costs are to be developed at all, one needs measures that are quantifiable and which stand in some meaningful relationship to the abstract product which cannot be measured directly. The choices are all among fairly inadequate alternatives, but the choice must be made if unit cost data are to be derived at all.

Most commonly, analysts feel that the instructional process produces student credit-hours, or SCH. The reasoning is that since it takes a specified number of credit-hours to graduate, and since graduation is the formal end of the instructional process, every activity and expense relates, however tenuously, to the production of SCH. Other measures are possible. Some analysts contend that the individual class is the proper unit about which to accumulate expenditures; Indiana has developed a respectable procedure based on this assumption. Still others hold out for the student contact-hour, or clock-hour, contending that the credit-hour makes insufficient allowance for types of learning activities other than classroom instruction--laboratory work, for example, or independent study.

Another widely used measure of instructional cost is the student himself. Care has to be taken, however, that we are talking about the right student. The individual student sitting docile and undivided at the far end of Mark Hopkins' log is no longer with us. Since in most institutions there are large numbers of part-time students, and since even full-time students vary widely in the number of classes they attend, it becomes necessary

to create a full-time equivalent student, or FTE student. This is done by dividing the total number of SCH produced by a figure that presumably represents a norm: what a full-time student would be taking if he were following the regular curriculum and expected to graduate in the prescribed time. A common figure for a four-year undergraduate liberal arts program would be fifteen credit-hours. Mark Hopkins remains on his log as long as he ever did, but the student is changed periodically during the day. Once we have established the number of FTE students it is divided into the total amount of instructional expenditures by the various divisions of the institution; the result is a unit-cost of instruction per FTE student.

Once the method for developing unit costs is established, there remains only the decision on form of presentation. Most commonly, unit-cost information is given by level of instruction--lower division, upper division, and graduate--and by department or school. This permits detailed comparisons among the major fields of instruction, and between similar departments in other institutions.[10] A sample page of such data is given in Appendix B.

At this point many cost analyses are finished. Others however, depending on the demand for such information, go on to study costs in areas other than instruction and departmental research. These costs can be analyzed in ways similar to direct instructional costs, and presented as unit-costs per SCH, or per FTE student. They can also be allocated back

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[10] It also, unfortunately, encourages comparisons of instructional costs between institutions of significantly different organizational structure. For example, junior college costs of teaching lower-division English are not comparable to the costs of teaching the same, or apparently the same, subject in universities.

to the instructional departments and added to the direct instructional cost. A library, for example, may give its expenditures for books and periodicals on an FTE student basis; or its expenditures may be divided among the various departments on a user basis, determined by a sampling of visitors or call slips.

It is easy to see why, because of the many choices available to cost analysts at different stages of the analysis, that each procedure tends eventually to become unique and has proven difficult to transplant from one state to another.[11] It will be a big step forward if the current project of W.I.C.H.E. to develop a standard management information system from which comparable cost data can be evolved succeeds. Past history and the differing requirements of the states for such information make it clear that the job will be a difficult one.

ADVANTAGES OF COST ANALYSIS

It is difficult in an evaluation of the benefits of cost analysis to improve on the discussion to be found in Miller's work on state budgeting in higher education.[12] Although Miller is concerned with the use of budget formulas as well as cost analysis, his arguments can be used with only a slight shift of emphasis.

First, there is the advantage of having an agreed-upon, objective system for determining the needs of higher education. This benefit is real and important, no matter how many objections may be made to the procedures

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[11] Miller, op.cit., p. 81.

[12] Ibid., pp. 79-84; 151-155.

themselves on methodological grounds. It may be argued that this is a 'kingdom of the blind' situation; but the need for objectivity in an area that all too easily can be ridden with politics and institutional rivalry is imperative. In Miller's words,

> ...the procedures provide some benefits to all parties concerned--for institutions: equitable treatment and more adequate levels of support; for state officials: assurances of economy and efficiency and administrative manageability in the budget process; and for both: a reasonably simple and understandable basis for deciding and presenting the financial requirements of higher education.[13]

The fact is that no one has been able to come up with an alternative to cost analysis that has the acceptance of all of the participants in the decision-making process.

As a result, while individual institutions may not get all the support that they might wish, it seems clear that, with a few exceptions, there has probably been more money available to higher education than there would have been otherwise, and the funds have been more equitably distributed.

Less important than the foregoing, but a still significant advantage, is the possibility of making comparisons among different programs and institutions on the basis of unit-cost data. In spite of the severe limitations on the validity of such comparisons, they do have some residual value. The demonstrably high unit-cost of graduate education, for example, may have occasionally slowed the needed expansion of graduate programs in the large state universities, but at the same time it undoubtedly prevented the costly development of unneeded competitive programs in four-year colleges.

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13 Ibid., p. 155.

Another advantage of unit-cost data is the way in which it can highlight basic policy questions. This is possible, of course, only where the cost analysis is reasonably complete; but in providing relatively simple measures of expenditures there is some assurance given to the decision-makers that they are looking at the institution as a whole and can make significant decisions without doing unintentional harm to other parts of it.

Another advantage, internal economy and efficiency within the individual institution, occurs in only a few instances. New Mexico is one of the few states presenting information in such detail that it can be used to spotlight internal problems. Most cost analysis systems, however, are directed only toward budget preparation at the state level, and the information is rarely detailed enough to be a useful aid to internal cost control.

A hidden advantage of all cost analysis systems is that they can point up policy decisions that are not admitted to have been made. It is a common saying that real learning cannot be measured, and yet it is measured, constantly, in ways and in accord with judgments that are scarcely defensible. A college that shows declining expenditures for books, for example, is putting some value, a low one, on one aspect of the learning process, and may be profitably embarrassed by having this pointed out. Many institutions' illusions about their well-paid faculties did not survive the first A.A.U.P salary report.

The limitations of cost-analysis, however, must also be considered, and carefully, for they determine the extent to which the data is really

useful. The fact that analysis fails when applied in the wrong way and to the wrong problems is not necessarily a criticism. Practically all of these limitations stem from unresolved (and in some cases unresolvable) conceptual or procedural problems.

THE MEANING OF COST

The absence of a firm conceptual underpinning to cost-analysis in education is evident in our inability to answer the simple, inevitable question: Once we have derived a valid and reliable unit-cost figure, how do we know whether the cost described is too high or too low?

The question is unanswerable. A cost in business is too high or too low when it affects market position and profit unfavorably. A cost in education may force an institution into bankruptcy, and yet still be too low; it may seem to have virtually no impact on the budget, and yet still be too high. In each and every case a final judgment must be rendered that relies ultimately on the intuition of decision-makers. Eric Ashby was not joking when he said that the chief skill of university administrators lies in navigating areas of ignorance. The very best cost information never becomes even approximately conclusive evidence.

How is the question of high or low cost determined in practice? One can assume that costs are always too high, and hire budget sleuths to uncover weak spots; this is always workable once every five years. Or one can get an expert opinion on comparative costs from someone in another institution with administrative experience in the same specialized area under investigation. This rests on many sliding assumptions involving personal reputation and institutional prestige. A president can always look at a budget

history, and be shocked into the realization that he never intended to authorize that level of expenditure. In the long run, unit-cost data does not really offer an alternative that is any more convincing than these exercises in administrative intuition, and the cost analysts will be the first to admit it.

Throughout higher education there seems to be great need of an acceptable economic theory of cost, one that can be translated into effective accounting and budget procedures. The lack of this can explain most of the defects in present cost analysis techniques; the ineffectiveness of the accounting system for controlling costs; and why the ultimate control over expenditures comes, not from an economic rationalization of programs, but from external factors that put an ultimately arbitrary limit on the funds available.

The dollar, like the atom, tends to become more complex the deeper one delves into its nature and functions. This is true in business, as anyone who has read a securities prospectus knows, but even more so in non-profit organizations. In business accounting there are several purposes to which cost information is put, relating either to internal planning and control, or to putting a value on products. The latter use relates primarily to public reporting of results, and is important to Internal Revenue and investors. Planning and control information is internally oriented, and more intimately reflects the basic nature of cost as a sacrifice of a valuable asset in exchange for another of potentially greater value. The accounting profession has been much concerned with the development of techniques to provide meaningful information for planning and control purposes. The need for planning and control is constant. If 'costs get out of hand' it will

be noticed soon enough and official action by management, from personnel changes to bankruptcy proceedings, can be taken.

In colleges and universities, on the other hand, if costs get out of hand not a great deal actually happens beyond appeals for more funds. Here the word 'cost', if not entirely ambiguous, does have meanings which are close to contradictory, depending on the context in which they are used. To use a specific case, a small liberal arts college may have determined, by tradition or by deliberate choice, that chemistry must be part of its educational program, and that lower-division students should be encouraged to devote perhaps one-fifth of their time to it. After making allowance for the cost-impact of majors and the changing nature of the field, if the expenses of the department consume 40% of the operating budget the question will certainly be raised, "Is chemistry costing too much?"

One reaction may be simple suspicion that perhaps part of the expenses of the football team are being channelled through the chemistry budget. At a more meaningful level, one can investigate whether the resources being charged to the department are actually being used there--for example, are more test tubes and glass tubing being ordered than are used or broken? With expert help, one may be able to determine that chemistry is 'costing' more than programs of comparable quality in similar institutions, and the fault must be laid to careless management.[14] The most common answer and the

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[14] It is significant, however, that 'cost' in this sense is not often applied to either instruction or research. A business manager can remark--and probably will--that a mass photospectrometer is very expensive; but it will take a lot of provocation, and he will live to regret it, if he is heard to say that the instrument or the chemistry department is too expensive.

one hardest to deal with is, "No, it is not costing too much, but we do not have the funds to pay for it." In this instance one can perceive a drastic difference between the business and educational concepts of cost. Here one has made deliberate exchange of value as responsible as any made in the business world. The chemistry department is expensive, but there is no waste involved and it is needed. It is not 'justified' in this college for no other reason than funds are not available. Meaningful cost control in this case would involve raising more money, changing objectives, or closing the college.[15]

Here then we have cost as a bookkeeping entry; cost as the acquisition of unneeded resources; and cost as a function of a shortage of funds. The third use is the most ambiguous, and points up clearly the radical differences between businesses and non-profit organizations in their approach to cost.

METHODOLOGY

Some of the specific methodological problems involved in educational cost analysis have been indicated previously. For example, the crucial choice of a unit of measurement of average costs is made in different ways by different systems. Almost all relate costs back to students and instruction, but if the measures are not the same, there is no chance of making direct comparisons among institutions. The problems of defining an FTE student, or an FTE faculty member are similar. A restriction on comparability is probably a healthy thing, however, for there is much

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15 One here comes very close to a conclusion that, given unlimited funds, efficiency and the final justification of cost decisions in a college is not to be found in relationship to any 'product' but rather in the extent to which expenditures are maximized in the areas of central concern to the institution.

need for additional research and experimentation.

More serious are those problems that can occur within a seemingly uniform and controlled system of analysis. Some variations come from different accounting practices, since accounting procedures in higher education do not lay out rigid rules to govern problems of classification. Much depends on the philosophy and practice of a given institution, for example, whether student publications are considered an organized activity relating to a journalism department; as a student activity, within the Educational and General category; or as an auxiliary activity. The amount of money involved can be quite large, and classification is or should be a matter of deliberate policy.[16]

Accounting practice also creates difficulties by being tied to a fiscal year that may differ on the one hand from the academic year and on the other from the appropriations year of the legislature. (One eastern state actually appropriates money for its institutions of higher education six months after the start of the academic year.) The data can be adjusted without too much difficulty in some cases, although the process is time-consuming and introduces the errors that crop up with any rehandling of figures. In other cases the data cannot be easily manipulated and rule-of-thumb adjustments are necessary. In either instance the reliability of the data is reduced.

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16 A regular surprise faced by new academic administrators is the extent to which policy decisions are made by default at a fairly low level in the institution through arbitrary classification of expenditures. This tends to invalidate studies, and seems due both to inattention to the accounting system on the part of administrators and to ignorance of the policy implications of their actions by accountants and analysts.

In many ways the accounting system poses unexpected difficulties for cost analysts. The system makes sense in the daily handling of money, and it is a tremendous improvement over the carelessness and confusion that was prevalent earlier in the century. But it does not reflect to any significant depth the realities of the educational process, following rather the traditional and often arbitrary administrative organization of the institution. Any meaningful analysis of instructional costs, for example, depends on a reasonable allocation of an instructor's salary to the separate courses and other activities for which he is responsible. This always requires a special study by the analyst. Another example is the problem of identifying, in scientific areas, the technical personnel who are related to instruction and research in a way distinct from that of the faculty or that of the general non-instructional staff. It is not practical for the accounting office to completely solve these and other analytical problems; and yet at the same time it seems more than a little paradoxical that the basic accounting records are of so little help in analyzing costs at key points of the instructional process.

An imaginary case may serve to underscore this point. Witness the impasse that develops when, at budget time, a controller walks into a committee room, produces a summary of departmental expenditures, and says, inevitably, that costs are too high and are threatening the financial stability of the institution. The academic administrators listen, and are concerned; but discussion proceeds almost as if no one had spoken. One does not even hear what would seem to be the inevitable questions, How do you know? or, Can you prove it? Everyone in the room, including the

controller, knows that he cannot 'prove' it. He may have succeeded in creating an atmosphere of gloom, but the point has been made again, as it is every year, that one cannot prove waste or excessive cost from the accounting records alone, and that the academic concept of cost exists in a separate (if hopefully parallel) universe. The only point the controller might be able to prove is impending financial catastrophe, but even this is difficult. Academic administrators have learned, as have the institutions's bankers, that deficits and cash flow problems that would long since have destroyed a business somehow or other, this year, will not turn out to precipitate the final catastrophe.

One cause of this situation is that accountants have not given much attention to non-profit accounting. The profession has admitted that colleges and universities have peculiar problems, and in general it has sanctioned the recommendations of the American Council on Education. But its general policy has been 'hands off;' there has been no attempt to develop rigorous and sophisticated techniques that might do for non-profit organizations what modern accounting has done for business.[17] As one result, higher education is quite weak when it comes to resisting the rigid and deadening demands of state and federal governmental accounting

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17 A well-documented discussion of this situation by an accountant is to be found in Howard A. Withey, "Financial Reports for Non-Profit Organizations," The Journal of Accountancy (December 1967), pp. 40-53.

systems.[18]

There are many other methodological problems apart from the ones posed by the accounting system. The difficulties of allocating faculty salaries may perhaps serve for all, central as it is to the whole analysis. The accepted procedure is to ask the individual faculty member to indicate the number of hours or percent of his total working time that he devotes to the major activities of teaching, research, public service, administration, advising students, and so on. The faculty member rarely pays much attention to this form except to get it off his desk, and the basic accuracy of the allocation is always in question even when the forms are inspected by department chairmen. But even if the faculty did pay close attention to the form, it is still questionable whether time spent is a valid basis for allocating cost. What the faculty member is most interested in doing (even if he feels he doesn't do enough of it, which is common), and what the department chairman expects him to do, will probably ultimately have more of an effect on marginal costs through demands for additional staff than will the projected cost of present activities.

How for example, would one properly allocate the salary of a professor who lectures once a week on the subject on which he is the world's leading authority, and also because of his personal sense of responsibility, spends much of the week in committee meetings on matters of institutional concern. Is he predominantly an administrator, (i.e., involved in administrative problems) or a teacher, or a scholar? If his salary is allocated on the

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[18] See the discussion of "Academic Accounting and the Federal Government" in Graduate Education: Parameters for Public Policy (Washington, D.C.: National Science Board, National Science Foundation, 1969), pp. 150-155.

basis of time spent he will probably show up in the cost analysis as a scholar-administrator, which makes very little sense if, as is quite possible, that one lecture a week is the main reason he was hired in the first place.[19]

Of course, the case is an extreme one, and the allocation procedure is still generally usable for large numbers of teaching staff. Still, it points up a fundamental limitation of cost analysis studies: that they are useful for estimating the gross needs of the colleges and universities, but tell us very little about the ways in which funds are actually channelled at the classroom and laboratory level.

At this point one is once again faced with the essential paradox of cost-analysis studies: that they were initiated for purposes of internal control over expenditures and are commonly considered to do just this, but their chief use has been for justifying additional expenditures by the state. Techniques for studying and controlling internal expenditures are probably no further advanced than they were in 1935.

In a number of cases, of course, state officials and legislators will use the available cost information to bring pressure to bear on what are considered 'high costs' in certain areas. However, the impact of such pressure is indirect and diffuse, and more likely to affect appropriations for whole institutions than it is to encourage institutional officials to

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19 After years of pressure on faculty to submit detailed time reports for supported research projects, the federal government in 1968 agreed to substitute a stipulated salary amount negotiated in advance, thus tacitly accepting the academic position that time spent is an unrealistic basis on which to allocate salary costs.

'control costs' in the business sense of the term. There is some public concern over the costs of higher education, but this concern is mediated only imperfectly by state governments.[20] Generally speaking there seems to be a great deal of confusion over the financial problems of higher education. The institutions assume that the main problem is a shortage of funds, and present cost analysis methods have been used principally to inform the state of their needs. On the other hand, there is more than a suspicion that because of insufficient control over internal costs money is finding its way into areas far removed from the central tasks of the colleges and universities.

In the confusion the instincts of the public are perhaps sound. A 1963 survey in Michigan found that the public was concerned about the cost of education to the individual family (which is not the same as the cost to the institution) but did not feel there was any great need for economy.[21]

The confusion is likely to continue, however, so long as we do not come up with an acceptable concept of cost and relate it with some precision to the demands of day to day administration on the one hand and to the

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20 A useful study is Albert E. Starkey, State-Level Educational Decision-Making in Texas (unpublished doctoral dissertation, The University of Texas, 1966). Starkey makes the points that there is very little grass-roots pressure for specific policy changes in education, and that because there are so many special interest groups operating in this area many politicians avoid it altogether as entailing too many risks and too few rewards.

21 Angus Campbell and William C. Eckerman, Public Concepts of the Values and Costs of Higher Education, Monograph No. 37 (Ann Arbor: Survey Research Center, Institute for Social Research, The University of Michigan, 1964).

practical needs of good instructional research, and public service programs on the other.

INFORMATION FOR DECISION-MAKING

While in one sense it may be outside the scope of this study, the question of how cost information is actually used is so important and all-determining in the long run that it should not be ignored.

It must be recognized that when it comes to practical decision-making the objectives of the decision-makers and of the analysts are not the same. A state legislator may wish the best for higher education in his state, but his immediate information needs are determined by the imminence of appropriations decisions and the many political pressures involved. His benevolence may, as a practical matter, have to stop at the point of doing no harm--which is quite a different thing from doing the most good. A similar malaise at budget time is often forced on academic administrators, who have to face a complexity of pressures for additional funds that makes a state politician's task look easy. As a consequence the practical information needs of administrators and legislators are both more pressing and less complicated than most analysts think. As a mental health statistician recently said, "Quick and dirty data gets used. Slow, clean, and elegant data winds up in journals, archives, and textbooks."

As a practical matter, the most that can be hoped for as a result of cost studies is that more or less adequate funds will be provided over-all, and that a maximum amount of flexibility will be permitted in the internal distribution of the money. This does occur more often than not, but in such circumstances the analyst's role becomes irrelevant once he has made

a prima facie case for more money. Analysts become somewhat cynical when they see their many qualifications and fine points swept aside in the decision-making process. Not that this stops them from their work. On the contrary it seems in some cases to encourage the development of even more arcane models and methodologies, which in turn, of course, are misused even more by state and academic decision-makers.[22]

Personal feelings aside, however, if we view an acceptable state budget as a homeostatic balance among the various forces competing for public funds, it seems imperative that the academic world learn to put its case in the most forceful and informed way possible, paying attention not only to the justification of its demands, but also to the ways in which that case will necessarily be viewed by decision-makers inside and outside the institution. This is a political, not a theoretical or methodological matter, and it is here that good cost analysis procedures may continue to be of considerable use.

For this to happen, however, there must be a better distribution of information. If there is a suspicion that too much information is available at the top of the state-decision-making pyramid, it seems that there is a serious deficiency at the academic centers of most colleges and universities. Concerned faculty members face substantial frustrations in trying to obtain meaningful financial information. In some cases it is held that such

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22 An analyst in an eastern state, one which is just beginning to use cost studies at the state level, puts the matter bluntly: "...in the public sector, especially, the politics associated with budgeting and appropriations are so pervasive that there is little reason to develop rational formulas or do careful cost analysis. It is more important to understand power relationships, personalities, patronage, and so on...my successor disagrees with this view. He feels we have not done an adequate job of developing and selling formulas."

information, especially when it concerns costs, is confidential. In even more instances, however, all that is available for use is either accounting information, which can rarely be used effectively without further analysis, or relatively useless cost information which has been developed for state budgetary purposes.

This situation, I believe, is as responsible as any for escalating costs in higher education, and it is doubtful whether efficient allocation of funds will be possible until it is corrected. Demands for expansion of programs, for the development of new schools and departments, for the buildings to house them, and for the related equipment--almost all are initiated within the academic divisions of the institutions. From these demands comes the future of learning. That they be made intelligently and in full view of the limiting economic facts is in the interests of learning and society alike.

Insufficient information, however, is not the only problem preventing more intelligent decision-making in higher education. An equally important problem is the difficulty of doing meaningful planning beyond the next fiscal year. Planning has been with us for a long time, but to date has been mostly in the form of master plans which are developed from historical data, become set and inflexible once approved, and are usually out of date six months after they are finished--sometimes sooner, if the preparation is prolonged. Since most budgets are incremental by nature, the obsolesence of a master plan does not become evident until for several years it has been a major obstacle to efficient development of the system. The present state of learning, however, which everywhere is bursting the bonds of the

old departmental classifications, desperately needs flexibility in the allocation of internal funds, and more opportunity than offered under present budget and planning systems for the initiation and development of completely new programs.

There seems to be considerable promise in the current popularity with university cost analysts of the planning-programming-budgeting system. The system is more of an attitude and an approach than it is a coherent methodology. Its unique contribution lies in the emphasis it places on creative thinking about budget alternatives for reaching stated goals, and the ways in which it forces cost-benefit decisions about the goals themselves. It does not require complicated statistical analyses, and is independent of the more rigid demands of accounting systems. Its chief advantage for higher education is probably its emphasis on adaptive long-range planning, which might be a feasible alternative to present cost-analysis methods for both internal and external use. There are drawbacks, however, and the current popularity tends to obscure them.[23]

SUMMARY

It may be said in conclusion that cost analysis in higher education provides useful quantitative information; that this information has to be used with discretion because of uncertainties concerning both validity and reliability; that unit-cost data is probably more useful as a guide for determining income needs than for controlling internal costs; that inter-institutional comparisons of unit-cost data are perilous; that the procedures

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23 See Aaron Wildavsky, "The Political Economy of Efficiency: Cost-Benefit Analysis, Systems Analysis, and Program Budgeting," Public Administration Review, 26 (December 1966), pp. 292-310.

which have been evolved for studying educational costs are neither rigorous nor sophisticated, and that it is unlikely that better methods will be developed until we have developed a workable concept of cost in non-profit organizations and understood the exchange of economic resources that takes place in higher education.

APPENDIX A

FUNDS AND REPORTING CATEGORIES RECOMMENDED IN COLLEGE AND UNIVERSITY BUSINESS ADMINISTRATION (REVISED EDITION).

Current Funds

Educational and General Income	Educational and General Expenditures
Student Tuition and Fees	Instruction and Departmental Research
Governmental Appropriations	Organized Activities Relating to Instructional Departments
Endowment Income	Sponsored Research
Gifts	Other Separately Budgeted Research
Sponsored Research	Other Sponsored Programs
Other Separately Budgeted Research	Extension and Public Service
Other Sponsored Programs	Libraries
Recovery of Indirect Costs from Sponsored Programs	Student Services
Sales and Services of Educational Departments	Operation and Maintenance of Physical Plant
Organized Activities Related to Educational Departments	General Administration
Other Sources	Staff Benefits
	General Institutional Expenses
Student Aid Income	Student Aid Expenditures
Auxiliary Enterprises Income	Auxiliary Enterprises Expenditures

Loan Funds

Endowment Funds

Annuity and Life Income Funds

Plant Funds

Agency Funds

TABLE 110 A INSTRUCTIONAL SALARY COST PER STUDENT CREDIT HOUR PRODUCED, FALL SEMESTER 1968-1969.

EXCLUDING GRADUATE ASSISTANTS.

	TOTAL	TOTAL LOWER LEVEL	TOTAL UPPER LEVEL	TOTAL GRAD. & PROFESSIONAL
COLLEGE OF DENTISTRY				
ANATOMY	19.17	11.57	27.45	
COLLEGE AVERAGES**	19.17	11.57	27.45	.00
COLLEGE OF ARTS & SCIENCES				
DEPT OF ACTUARIAL SCIENCE	31.64	14.69	24.17	191.00
DEPT OF ANTHROPOLOGY	7.91	1.51	34.84	155.58
DEPT OF ART	24.67	16.79	33.92	100.98
BIOLOGY	2.99	2.99		
DEPT OF BOTANY	64.20	31.39	112.53	149.00
DEPT OF CHEMISTRY	15.67	6.05	22.26	76.95
DEPT OF THE CLASSICS	25.97	15.21	84.68	
DEPT OF ENGLISH	18.08	11.76	21.50	66.84
DEPT OF GEOGRAPHY	25.53	15.94	23.17	170.10
DEPT OF GEOLOGY	18.06	7.19	49.66	103.40
DEPT OF GERMANIC LANG	46.35	27.93	78.36	64.30
DEPT OF HISTORY	14.47	4.22	18.83	141.83
SCHOOL OF JOURNALISM	45.39	20.64	60.07	
DEPT OF MATHEMATICS	12.61	6.37	29.39	117.95
DEPT OF MICROBIOLOGY	22.46		12.04	144.52
DEPT OF MUSIC	40.14	23.81	63.21	154.19
DEPT OF PHILOSOPHY	21.44	10.79	28.85	103.76
DEPT OF PHYSICS	48.24	17.49	163.53	259.91
DEPT OF POLITICAL SCIENCE	12.94	4.15	15.35	169.25
DEPT OF PSYCHOLOGY	19.34	7.19	14.75	105.56
DEPT OF ROMANCE LANG	34.51	27.74	42.15	99.99
DEPT OF SOCIOLOGY	9.76	2.88	11.19	77.13
DEPT OF SPEECH & DRAMA	24.82	11.91	34.81	112.65
DEPT OF ZOOLOGY	10.42	4.83	51.56	154.56
COLLEGE AVERAGES**	18.86	9.32	25.56	107.65

SOURCES CONSULTED

Documents in the Office of Institutional Research

CALIFORNIA

Clifford T. Stewart and John W. Hartley, Financial Aspects of Inter-Institutional Cooperation: Unit Costs in Cluster and Non-Cluster Colleges. June 1968.

Interesting study of the costs of seven services provided in common to the Claremont Colleges, comparing them to the costs of the same services at eighteen other institutions.

BRITISH COLUMBIA

The University of British Columbia Cost Study, 1966-67.

Initial effort at accumulating costs by department and level. Procedural choices not entirely clear, but extensive information supplied. Apparently unit-cost measure chosen was student head-count. Included is a copy of the form sent to faculty for allocating their time.

COLORADO

Class Sizes, Teaching Loads, Instructional Salary Costs, 1965-66, Colorado State-Controlled Colleges and Universities. Denver: Colorado Commission on Higher Education, July, 1968.

Delayed publication of what was started as an annual series.

Community Junior Colleges: An Analysis of Class Size, Faculty Teaching Load, Instructional Salary Cost, for 1964-65. Prepared by Nai-Kwang Chang in cooperation with Leland B. Luchsinger. Denver: Division of Finance and Statistics, Office of Administrative Services, Colorado State Department of Education, 1965.

General data, including some information on direct instructional costs per SCH.

FLORIDA

Program Cost Differentials at the University of South Florida, 1966-67.

One in a continuing series of studies, done for the University on the basis of instructions issued by the State Board of Regents. Cost per FTE student, by program and level; selected factors related to instructional load; costs per SCH; and other related tables. Data relatively simple.

University of Florida Cost Study for the Fiscal Year Ended June 30, 1967.

Distribution of gross amounts by main budget categories. Tables are also provided for a number of derived measures relating to instructional costs, but no explanations are provided as to the precise method of derivation.

IDAHO

Idaho's System of Higher Education, 1969.

General informational report of the State Board of Education. Contains recommendations to the legislature and an extended explanation of a newly adopted formula approach to budget requests for higher education. The formulas used are derived in large part from Russell.

ILLINOIS

Cost Study Manual 1965-66.

Definitions and procedures developed over a three-year period by the Budget Formula Committee of the Board of Higher Education. To be used by all state institutions in reporting costs. Provides for a significant degree of institutional discretion in deriving several key measures, among them definition of student levels and ways in which faculty services are reported.

Unit Cost Study 1967-1968, Southern Illinois University, Carbondale Campus.

Cost per SCH by program and level. Approach and procedures explained. Also provides cost ratios of several types.

INDIANA

Purdue University 1966-67 Cost Study and Comparative Data. Institutional Cost Studies, August, 1968.

Summary data without explanation.

INDIANA (Continued)

L. E. Hull and D. A. McWhirter, Unit Cost Analysis Procedure, Indiana University. 1964.

Very carefully developed procedure for cost study begun in 1947. The state does not require a common procedure; for the four major Indiana institutions but information is exchanged regularly and in fact the cost analysts have similar approaches. Faculty service based on average hours per week. Costs are derived on a per student basis at course level, rather than on a credit-hour basis.

LOUISIANA

Louisiana State University: A Study of Budgeted Instructional Costs Per Student Credit Hour (Main Campus) 1962-1967.

Initial study. Direct instructional costs per SCH by department.

MARYLAND

University of Maryland, College Park Campus Cost Per Student Summary by College, Fiscal 1967.

One-page summary, with a three-page explanation of procedure.

MICHIGAN

Cost of Vocational-Technical Courses, 1967-68. Michigan Department of Education, n.d.

Study of direct instructional costs only, in Michigan community colleges.

Information System for Analyzing the Utilization of Academic Personnel Resources. Handout for Planning Seminar, March 10, 1969. Office of Institutional Research, The University of Michigan.

A method of program costing under current development that will elaborate present fall semester study.

A Report to the Michigan Legislature on the Financial Requirements for the Operations and Capital Outlay of Public Four-Year Colleges and Universities and Public Community Colleges in Fiscal Year 1968-69. Planning Division, Bureau of Higher Education, Michigan Department of Education, February 28, 1968.

Official report of the state board of education. Some unit cost data, based on student headcount.

MICHIGAN (Continued)

Student Credit Hours and Direct Costs in the Schools and Colleges, Fall Terms 1965-1966 and 1966-1967. The Office of Institutional Research, The University of Michigan.

Methodology. The University of Michigan, 1965. Typewritten and xeroxed report on the development of methods for above.

Annual study of direct instructional costs at the University of Michigan. Differs from report submitted to the legislature in allocating instructors' salaries on the basis of 'percent of total effort' reports.

Student Credit Hours and Direct Costs--General Funds--Fall Term, 1968. Xeroxed copies of computer print-outs.

Summary data by student credit hour, for department, level of instruction, and rank of instructor.

Unit Cost Study, Instruction and Departmental Research, 1964-65 and 1966-67. N.p.: Michigan Council of State College Presidents, 1966 and 1968.

Instruction for 1966-67 Cost Study. Joe L. Saupe, Special Assistant, Instructions for 1966-67 Cost Study. (Mimeographed.)

Documents of the annual study done by the public institutions of Michigan to coordinate their budget requests to the legislature. Extensive comparative unit cost data based on student semester credit hour. Michigan's experiences and documents are worth studying in historical context. Entire salaries of instructors spread among courses on a credit-hour basis.

MISSISSIPPI

Statistical Summaries, 1968-69. The Board of Trustees of Institutions of Higher Learning, State of Mississippi, January, 1969.

Extensive tabular data, some given in the form of unit costs per student. No explanation of methodology.

MISSOURI

University of Missouri, xeroxed sample pages from cost study reports and procedures.

NEBRASKA

The University of Nebraska, Lincoln Campus, Analysis of Course Offerings, Class Size, Teaching Load, and Credit Hour Costs, First Semester, 1968-1969. Office of Institutional Research and Planning, March, 1969.

Extensive report primarily concerned with class size and teaching load, but with some unit-cost data. Fourth in a series.

NEW MEXICO

Analysis of Institutional Operating Budgets, 1968-69. Board of Educational Finance, n.d.

Extensive historical data on income and expenditures for the different campuses of the state.

NEW YORK

Statistical Data on Teaching Load and Instruction, State University of New York, Albany, prepared by Office of Vice Chancellor for Finance and Management, Fall, 1967.

Summary data on the various campuses of S.U.N.Y., apparently presented explicitly for making inter-institutional comparisons. Information on methods used not available. It is not clear whether any expenses besides faculty salaries were considered. Expenditures, unit costs, presented by subject field and discipline.

OHIO

Ohio Board of Regents Uniform Information System, Resource Analysis Procedures. N.p., n.d.

Recent procedure developed for the institutions of the state. Information is requested from private as well as public institutions, although only the latter is published. Included are seven tables of summary data for 1968-69.

OKLAHOMA

Current Operating Income and Expenditures, Oklahoma State Colleges and Universities, Fiscal Year 1966-67.

Staff report for informational purposes. The data are presented as "valid for the purpose of drawing rather broad conclusions." Basic data presented in terms of total amounts by the main educational and general categories over a four-year period, the percent of the total current operating budgets each amount represents (allowing comparisons among years),

OKLAHOMA (Continued)

and amount in the same categories per FTE student, also permitting comparisons. Income analyzed as well as expenditures.

Faculty Salaries in the Oklahoma State System of Higher Education. Two reports: 1966-67, and 1967-68.

Staff reports on faculty and selected administrative salaries. Averages and ranges by rank and institution.

Faculty Teaching Loads and Student-Credit-Hour Costs: Oklahoma State System of Higher Education, 1966-67 Academic Year.

One of a series of annual studies. Used by the State Regents, and also internally for planning purposes. Analyzes teaching loads, class sizes, and instructional salary costs. Credit hours used to express load, not clock hours. Information provided for separate institutions by department, as well as combined for the whole system.

Operating Budget Needs of the Oklahoma State System of Higher Education. Four pamphlets. Recommendations of the Oklahoma State Regents for Higher Education to the Governor and Legislature for the 1965-67 biennium, and for fiscal years 1967-68, 1968-69, and 1969-70.

Clear statement of principles and formulas employed in drawing up budget recommendations. Establishes number of faculty needed in relation to expected enrollment, determines average salary levels, and provides funds for other parts of the educational and operating budgets by applying the Russell standards. Some development of principles and procedures can be noted over the five-year period.

TEXAS

Definitions of the Elements of Institutional Costs. Coordinating Board, Texas College and University System.

Part of the uniform system of reporting for institutions of higher education. Definitions clear, in some cases highly detailed. Given by budget category.

Formulas Designated by Coordinating Board, 1969-71 Biennium. Coordinating Board, Texas College and University System, April, 1968.

Formulas "for the use of the Governor and the Legislative Budget Board in making appropriations recommendations to the Legislature." Basic instructional appropriations derived by multiplying total number of SCH produced the previous year by a specified dollar amount. This amount varies by level of instruction and type of program. No information is given on how the specified amounts are determined.

UTAH

Financing Higher Education in Utah, 1969-1970. Utah Coordinating Council of Higher Education, January, 1969.

Extensive data for each campus. Equates upper-division and graduate students to lower-division students to produce a lower-division full-time equivalent (LDFTE) student.

Instructional Costs, University of Utah, Year Ended June 30, 1967.

Detailed analysis of costs by department and level; given in total dollars and per FTE student. Graphic presentation of FTE student costs, and clear explanation of methods.

VIRGINIA

Analysis of Instructional Costs at the University of Virginia, Summer Sessions 1967 and 1968. Office of Institutional Analysis, June, 1969.

Costs per SCH by level of instruction and faculty rank for each department of the university.

WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION

Management Information Systems Program. Four pamphlets. Objectives and Guidelines of the WICHE Management Information Systems Program. Phase II Objectives and Time Schedule of the WICHE Management Information Systems Program. Compatible Management Information Systems. Data Element Dictionary: Students.

Initial publications of an ambitious project, mainly but not exclusively involving western institutions of higher education that hopes, among other objectives, to develop a common management information system that will "significantly improve the capability of local institutions and agencies to more effectively allocate resources," and provide comparable cost data on the cost of instructional programs. The project has won wide acceptance and unusual cooperation to date.

WISCONSIN

Financing Two-Year Institutions of Public Higher Education in Wisconsin. Coordinating Council for Higher Education, September, 1968.

Some use of unit-cost data.

1969-71 Coordinating Council for Higher Education Budget Recommendations for Public Higher Education.

For the most part only gross data are supplied. Little use of standards developed from historical cost studies. Faculty salary levels influenced by Big Ten data.

Review of Nonresident Tuition Levels in the University of Wisconsin and State University Systems. Coordinating Council for Higher Education, April, 1969.

Some use of unit-cost data as evidence on a matter of state policy.

University of Wisconsin, Cost of Instruction, 1967-68. Xeroxed tables.

Outline of Proposed Procedure for Determining Instructional Cost by Level for First Semester, 1967-68.

Costs per SCH for the major units of the university, and instructions for forms preparation.

University of Wisconsin, Setting Student Fees and Determining Student Costs, 1969-71. March 25, 1969.

Details of two methods of projecting costs for the university, which serve as evidence in requesting additional state funds and establishing student fees.

Secondary Sources

Blaug, Mark, The Productivity of Universities. Reprint Series, No. 23. London: Unit for Economic and Statistical Studies on Higher Education, London School of Economics and Political Science, n.d.

Argues that there is no unique measure of university productivity, and attacks a number of fallacies regarding the problem.

California and Western Conference Cost and Statistical Study for the Year 1954-1955. N.p., n.d.

An important study in comparative costs among ten institutions in different parts of the country. Techniques and definitions, and to some extent the resulting average cost figures, have had some influence on university administration over the past decade. Postulates that opportunities for cost reduction lie in the realm of unit costs.

Campbell, Angus, and William C. Eckerman. Public Concept of the Values and Costs of Higher Education. Monograph No. 37. Ann Arbor: Survey Research Center, Institute for Social Research, The University of Michigan, 1964.

Demonstrates, among other points, that "public opinion is clearly not prepared for the very substantial increases in educational expenditures which are inevitable if the rising demand for college education is to be met." (P. 113.)

College and University Business Administration. Compiled by The National Committee on the Preparation of a Manual on College and University Business Administration. Two volumes. Washington, D.C.: American Council on Education, 1952.

Superseded by the 1968 revision, but contains the important Computation of Unit Costs from 1935.

College and University Business Administration., Revised edition. Washington, D.C.: American Council on Education, 1968.

Current edition of the 'bible' of college and university financial management. Any study of university accounting must start here.

Glennerster, Howard. Graduate School: A Study of Graduate Work at the London School of Economics. Toronto: University of Toronto Press, 1966.

An intelligent application of simple cost analysis techniques to British higher education in Chapter X, "Expenditure and Costs," pp. 118-130.

Graduate Education: Parameters for Public Policy. Report prepared for the National Science Board. Washington, D.C.: The Board, National Science Foundation, 1969.

Provocative discussion of general financial problems in part III, and conclusions on the cost of quality in pp. 108-115.

Ikenberry, Stanley O., and Joe L. Saupe, "Purposes, Decision Points, and Methodological Alternatives in Instructional Cost Studies," n.p., n.d. Unpublished manuscript.

Very closely reasoned explanation and defense of traditional cost analysis techniques.

Miller, James L., Jr., State Budgeting for Higher Education: The Use of Formulas and Cost Analysis. Ann Arbor: Institute of Public Administration, The University of Michigan, 1964.

An essential source for the study of cost analysis procedures; thoroughly documented.

Millett, John D. Financing Higher Education in the United States. The Staff Report of the Commission on Financing Higher Education. New York: Columbia University Press, 1952.

Part Two, "Costs and Administration," pp. 99-277, is worth reading in its entirety for its realistic analysis of cost problems of the early fifties. Chapter 7, "The Program Analysis of Educational Costs," reveals Millett's skepticism concerning detailed cost analysis.

The National Federation of College and University Business Officers Associations, A Study of Income and Expenditures in Sixty Colleges--Year 1953-1954. N.p., n.d.

Comparative cost study among a group of mostly small private colleges. Extensive tabular data developed from accounting records.

"Planning--Programming--Budgeting System: A Symposium," Public Administration Review, 26 (December 1966), pp. 243-310.

Six articles that together provide as informative a summary as available anywhere of the history, aims and general techniques of PPBS.

Rappaport, Donald, "New Approaches in Public Education," The Journal of Accountancy, (July 1968), pp. 31-42.

A proposal for applying PPBS concepts to public education, with some relevance for higher education.

Russell, John Dale, The Finance of Higher Education. Revised edition. Chicago: The University of Chicago Press, 1954.

The most readable, sensible, and thorough book on its subject. Analysis of costs is discussed at length in Chapter VII.

Russell, John Dale, and James I. Doi, "Analysis of Institutional Expenditures," College and University Business Administration, 19, 20 and 21 (September 1955 to August 1956, various issues).

The most detailed explanation of how to conduct a cost analysis that has appeared in print.

Smart, John M., Political Aspects of State Coordination of Higher Education: The Process of Influence. Unpublished doctoral dissertation, University of Southern California, 1968.

A study of the California Coordinating Council for Higher Education, with some reference to similar councils in other states. "In all, the Council is seen to be of limited, or moderate, effectiveness in the conduct of its relationships with state government."

Starkey, Albert E., State-Level Educational Decision-Making in Texas. Unpublished doctoral dissertation, The University of Texas, 1966.

Useful study of the impact of educational problems on state legislators, with analogous lessons for higher education.

Stuart, Douglas A., The Application of Formula and Cost Analysis Procedures to the Budgeting of Academic Departments. Unpublished doctoral dissertation, Michigan State University, 1966.

Application of California, Ohio and Florida budget procedures to 15 departments at Michigan State University for internal budgeting purposes. Concludes that procedures are helpful, but that definition of workload in various formulas is crucial for some departments. Sees greatest advantage in area of long-range planning.

Swanson, John E., Arden, Wesley and Still, Jr., Homer E., Financial Analysis of Current Operations of Colleges and Universities. Ann Arbor: Institute of Public Administration, The University of Michigan, 1966.

An analytical study of university expenditures undertaken at the request of several university associations; perhaps more useful for analysts than for policy-makers.

Systems for Measuring and Reporting the Resources and Activities of Colleges and Universities. Washington, D.C.: National Science Foundation, 1967.

The so-called Henle report, several years in development. A good case study, although not intended as such, of the difficulties of completely rationalizing university operations.

Tickton, Sidney G., Needed: A Ten Year College Budget. New York: The Fund for the Advancement of Education, 1961.

A simple technique for budget projection that has been widely influential.

University of Oxford, Report of Commission of Inquiry. Volume I: Report Recommendations, and Statutory Appendix. Oxford: Clarendon Press, Oxford University Press, 1966.

The final report of the Franks Commission. Chapter V, "Costs in a Collegiate University," gets a great deal of mileage out of a minimum of information.

Walton, Joel P. Methods Utilized by State Boards of Higher Education to Distribute Current Operating Expenditures. Unpublished doctoral dissertation, University of Mississippi, 1967.

An Analysis of the Methods Utilized by State Boards Governing Multiple Institutions of Higher Education in the Distribution of Current Operating Funds Under their Control.

Williams, Harry, Planning for Effective Resource Allocation in Universities. Prepared for the Commission on Administrative Affairs of the American Council on Education. Washington, D.C.: The Council, 1966.

Stimulating, although very general, discussion of the advantages of program budgeting for higher education.

Withey, Howard A., "Financial Reporting for Non-Profit Organizations," The Journal of Accountancy, (December 1967), pp. 40-53.

One of the very few studies of the problems of non-profit accounting, by a professional accountant.

Witmer, David R., Unit Cost Studies in Higher Education. Madison, Wisconsin: Board of Regents of State Universities, 1967.

Survey of literature on unit-cost studies, and application of various formulas to Wisconsin.

Yardsticks and Formulas in University Budgeting. Report of a Seminar on the Budgeting Process for Higher Education in Western States. Boulder, Colorado: Western Interstate Commission for Higher Education, 1959.

Papers and discussion. "Many questions were asked, but definitive answers seldom were forthcoming. It became clear that problems in this area do not lend themselves to simple solution." (P. 41.)